

Fifth AP Grade Standards Progression 2012-13

Grade 5 AP	Weeks 1-6	Weeks 7-12	Weeks 12-18	Weeks 19-30	Weeks 31-36	
Write and interpret numerical expressions.						
5.OA.1- Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.			<ul style="list-style-type: none"> I can use parentheses, brackets, or braces in numerical expressions and evaluate expressions with these symbols. 			
5.OA.2- Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.			<ul style="list-style-type: none"> I can write simple expressions to represent calculations with numbers when the calculations are given verbally or with visual models. I can interpret expressions without evaluating them. 			
Analyze patterns and relationships.						
5.OA.3- Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms.			<ul style="list-style-type: none"> I can create two numerical patterns 			

Fifth AP Grade Standards Progression 2012-13

Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.			<p>using two given rules.</p> <ul style="list-style-type: none"> • I can identify apparent relationships between corresponding terms. • I can create ordered pairs using terms from two patterns and graph the ordered pairs on a coordinate plane. 			
Understand the place value system.						
5.NBT.1- Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.		<ul style="list-style-type: none"> • I can explain how the value of a digit in a multi-digit number relates to the value of the digits around it. 				
5 NBT.2- Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal		<ul style="list-style-type: none"> • I can read and write decimals using base-ten numerals, 				

Fifth AP Grade Standards Progression 2012-13

point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.		<p>number names, and expanded forms.</p> <ul style="list-style-type: none"> I can compare two decimals to the thousandths place using $<$, $=$, and $>$ symbols based on place value. 				
<p>5.NBT.3- Read, write, and compare decimals to thousandths.</p> <p>a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.</p> <p>b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p>				<ul style="list-style-type: none"> I can read and write decimals to thousandths using base-ten numerals, number names, and expanded form. I can compare two decimals to thousandths based on the digits in each place using $>$, $=$, and $<$. 		
5.NBT.4- Use place value understanding to round decimals				<ul style="list-style-type: none"> I can use place value 		

Fifth AP Grade Standards Progression 2012-13

to any place.				understandin g to round decimals to any place.		
Perform operations with multi-digit whole numbers and with decimals to hundredths.						
5.NBT.5- Fluently multiply multi-digit whole numbers using the standard algorithm	<ul style="list-style-type: none"> I can fluently multiply multi-digit whole numbers using the standard algorithm. 					
5.NBT.6- Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	<ul style="list-style-type: none"> I can divide a 4 digit by a 2 digit number using place value, the properties of operations, and/or the relationship between multiplication and division and interpret the remainder. 					
5.NBT.7- Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties		<ul style="list-style-type: none"> I can add, subtract, multiply, and divide decimals to 				

Fifth AP Grade Standards Progression 2012-13

of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.		<p>hundredths using concrete models or drawing and strategies based on place value and properties of operations.</p> <ul style="list-style-type: none"> I can relate the strategy to a written method and explain the reasoning used. 				
Use equivalent fractions as a strategy to add and subtract fractions.						
5.NF.1 -Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators				<ul style="list-style-type: none"> I can add and subtract fractions (including mixed numbers) with unlike denominators by finding equivalent fractions with like denominators. 		
5.NF.2 - Solve word problems				<ul style="list-style-type: none"> I can use my 		

Fifth AP Grade Standards Progression 2012-13

involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.				<p>strategies to solve word problems involving addition and subtraction of fractions.</p> <ul style="list-style-type: none"> I can use benchmark fractions and number sense of fractions to mentally estimate and assess the reasonableness of my answers. 		
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.						
5.NF.3- Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.				<ul style="list-style-type: none"> I can interpret a fraction as division of the numerator by the denominator. I can use my strategies to solve word problems involving division of 		

Fifth AP Grade Standards Progression 2012-13

				whole numbers leading to answers in the form of fractions or mixed numbers.		
<p>5.NF.4- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.</p> <p>a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)</p> <p>b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply</p>				<ul style="list-style-type: none"> I can compare the size of the product of two fractions to the product of two other fractions based upon the size of the unit fraction. I can use a visual model to represent a fraction multiplied by another number. I can create a story context for a situation involving a fraction multiplied by 		

Fifth AP Grade Standards Progression 2012-13

fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.				<p>another number.</p> <ul style="list-style-type: none"> I can use my strategies to represent fraction products as rectangular areas. 		
<p>5.NF.5- Interpret multiplication as scaling (resizing), by:</p> <p>a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</p> <p>b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.</p>				<ul style="list-style-type: none"> I can compare the product to one factor based on the size of the other factor without multiplying the factors. I can multiply a whole number by a fraction and compare the size of the product to the original whole number. 		
5.NF.6- Solve real world problems				<ul style="list-style-type: none"> I can use my 		

Fifth AP Grade Standards Progression 2012-13

involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.				strategies to solve real world problems involving multiplication of fractions and mixed numbers.		
<p>5.NF.7- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.¹</p> <p>a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. <i>For example, create a story context for $(\frac{1}{3}) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(\frac{1}{3}) \div 4 = \frac{1}{12}$ because $(\frac{1}{12}) \times 4 = \frac{1}{3}$.</i></p> <p>b. Interpret division of a whole number by a unit fraction, and compute such quotients. <i>For example, create a story context for $4 \div (\frac{1}{5})$, and use a visual fraction model to show the quotient. Use the</i></p>				<ul style="list-style-type: none"> • I can divide a unit fraction by a non-zero whole number using a visual model and relate it as the inverse of multiplication • I can divide a whole number by a unit fraction using a visual model and relate it as the inverse of multiplication • I can solve real world problems involving division of 		

<p><i>relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.</i></p> <p>c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?</i></p>				<p>unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.</p>		
Convert like measurement units within a given measurement system.						
<p>5.MD.1- Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.</p>		<ul style="list-style-type: none"> I can convert among different-sized standard measurement units within the same system and solve multi-step real world 				

Fifth AP Grade Standards Progression 2012-13

		problems.				
Represent and interpret data						
5.MD.2- Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots.				<ul style="list-style-type: none"> • I can make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). • I can use operations to solve problems involving information presented in line plots which use fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). 		
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.						
5.MD.3- Recognize volume as an attribute of solid figures and understand concepts of volume measurement. <ul style="list-style-type: none"> • A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. • A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n 		<ul style="list-style-type: none"> • I can use volume as one characteristic to describe a solid figure. • I can explain different ways volume can be measured. • I can identify a unit cube and explain 				

Fifth AP Grade Standards Progression 2012-13

cubic units.		<p>how it can be used to measure volume.</p> <ul style="list-style-type: none"> • I can explain the relationship between the number of cubes it takes to fill a solid figure and the volume of that figure. 				
5.MD.4- Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.		<ul style="list-style-type: none"> • I can measure volume in cubic in, cubic cm, and cubic ft by counting cubes. 				
<p>5.MD.5- Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <p>a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the</p>		<ul style="list-style-type: none"> • I can explain how volume relates to multiplication and addition. I can solve real world problems involving volume. • I can explain why finding the volume 				

Fifth AP Grade Standards Progression 2012-13

height		<p>by packing a figure with unit cubes is the same as the volume found by multiplying the edges lengths or by multiplying the height by the area of the base.</p> <ul style="list-style-type: none"> • I can find the volume of a right rectangular prism by packing it with cubes. • I can apply the formulas $V = l \times w \times h$ and $V = B \times h$ to find the volume of a right rectangular prism in the context of real world problems. • I can solve real world problems by decomposing 				
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Fifth AP Grade Standards Progression 2012-13

		a solid figure into two right rectangular prisms and adding their volumes together.				
Graph points on the coordinate plane to solve real-world and mathematical problems						
<p>5.G.1- Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</p>			<ul style="list-style-type: none"> • I can define a coordinate system and its components (origin, axes, ordered pairs/coordinates.) • I can locate and describe how to locate an ordered pair (x- and y-coordinates) using the x- and y-axes. 			
<p>5.G.2- Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the</p>			<ul style="list-style-type: none"> • I can represent mathematical problems by graphing points in the 			

Fifth AP Grade Standards Progression 2012-13

situation.			first quadrant and interpreting coordinate values of points in real world contexts.			
Classify two-dimensional figures into categories based on their properties.						
5.G.3- Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category			<ul style="list-style-type: none"> I can recognize that if an attribute of a two-dimensional figure belongs to a category it also belongs to all subcategories. 			
5.G.4- Classify two-dimensional figures in a hierarchy based on properties.			<ul style="list-style-type: none"> I can classify two-dimensional figures based on their properties. 			
6.NS.4 Find the greatest common factor of two whole numbers less			<ul style="list-style-type: none"> I can find the 			

Fifth AP Grade Standards Progression 2012-13

<p>than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express the sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two numbers with non common factor.</p>			<p>greatest common factor of two whole numbers less than or equal to 100.</p> <ul style="list-style-type: none"> • I can find the least common multiple of two whole numbers less than or equal to 12. • I can use the distributive property to express the sum of two whole numbers up to 100 with a common factor as a multiple of a sum of two numbers with non 			
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Fifth AP Grade Standards Progression 2012-13

			common factor.			
<p>6.EE.2 <i>Write, read, and evaluate expressions in which letters stand for numbers.</i></p> <p>6.ee.2a Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "subtract y from 5" as $5 - y$.</p> <p>6.EE.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.</p> <p>6.EE.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$.</p>		★ ▶	<ul style="list-style-type: none"> I can find the greatest common factor of two whole numbers less than or equal to 100. I can find the least common multiple of two whole numbers less than or equal to 12. I can use the distributive property to express the sum of two whole numbers up to 100 with a common 			

Fifth AP Grade Standards Progression 2012-13

			factor as a multiple of a sum of two numbers with non common factor.			
<p>6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, create story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (in general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? Learning Target:</i> I can interpret and compare quotients of fractions. I can solve word problems involving division of fractions by fractions.</p>				<ul style="list-style-type: none"> • I can interpret and compare quotients of fractions. • I can solve word problems involving division of fractions by fractions. 		
6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.					<ul style="list-style-type: none"> • I can fluently divide multi-digit numbers 	

Fifth AP Grade Standards Progression 2012-13

					using the standard algorithm.	
6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.					<ul style="list-style-type: none"> I can fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 	
6.SP.5 Summarize numerical data sets in relation to their context, such as by: c) Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which data were gathered.					<ul style="list-style-type: none"> I can identify the mean and the median of a data set. I can describe patterns and deviations of a data set. 	